TROXNETCOM AS-i
Controllers and repeaters

Controllers for the data acquisition and control of the field modules, repeaters for a maximum expansion of the network

Controller for controlling actuators and for monitoring the damper blade position and duct smoke detectors

- ■ Controller with TROXNETCOM Basic User Software
- ■ Easy and safe commissioning without programming
- ■ Controller with master function for stand-alone operation
- ■ System monitoring
- ■ Automatic recognition of components and their status
- ■ Menu-driven user interface (controller display) for system configuration
- ■ Peripheral equipment can be tested without additional auxiliary equipment

6

Description

TROXNETCOM AS-i
Controllers and repeaters

Application
Controller
– Controllers (AS-i masters)
  are basically used for management functions.
– They initialise the AS-Interface network,
  recognise all slaves on a bus,
  perform error diagnosis, and send signals.
– They also control the data transfer on the bus
  and request status information from all slaves
  in regular intervals.
– The data for all slaves is stored in the controller
– A single controller can manage 31 slaves,
  a dual controller can manage 62 slaves
– Controllers provide interfaces
  (gateway functions) to higher-level central units
  or controls, e.g. PROFIBUS DP and Ethernet
– Controllers can be linked through these
  interfaces and hence allow for building
  independent systems without a central unit
– The programming effort for the central unit
  is fairly low since the data in the controller
  have already been pre-processed
– The AS-Interface controller is treated
  as a slave of the higher-level system
– AS-Interface does not incur the cost
  for programming the gateway function,
  which is usually required
  for other systemserface
– This is handled by the dedicated
  TNC Basic User Software
– Each controller with master function
  is equipped with this software

Repeater
– AS-i repeaters are used to extend the usual
  length of AS-i networks by another 100 m
– An existing 100 m segment can be extended
  by another 100 m
– Two repeaters can be used on one
  AS-i segment, i.e. one segment can be up
  to 300 m long
– The total number of 31 slaves
  per controller cannot be exceeded
– A repeater acts also as galvanic isolation
  of the two AS-i segments, hence providing
  safety against short circuits
– Active slaves can be positioned before
  and after the repeater
– Each repeater requires
  an AS-i power supply unit

Order code

TNC – A1305
1

1 Type

|	
TNC-A1305	Controller with PROFIBUS DP interface; 1 master
TNC-A1306	Controller with PROFIBUS DP interface; 2 masters
TNC-A1353	Controller with Modbus/TCP interface; 1 master
TNC-A1354	Controller with Modbus/TCP interface; 2 masters
TNC-A1375	Gateway with PROFIBUS DP interface; 1 master
TNC-A2225	Repeater
TNC-ZB0252	AS-i safety gateway
TNC-Z0119	Passive bus termination
TNC-A1146	AS-i tuner (diagnosis module)

6

Description

TNC-A1305

Application
– AS-i controller TNC-A1305
  with 1 master for 31 AS-i slaves
– Decentralised operating and monitoring system
  with signal preprocessing and gateway
– With TNC Basic User Software
– Recognition of all slaves on a bus
– For initialising the AS interface network
– Error diagnosis and signalling
– LC display, 43 × 28 mm, also for operation
– PROFIBUS DP interface

Technical data

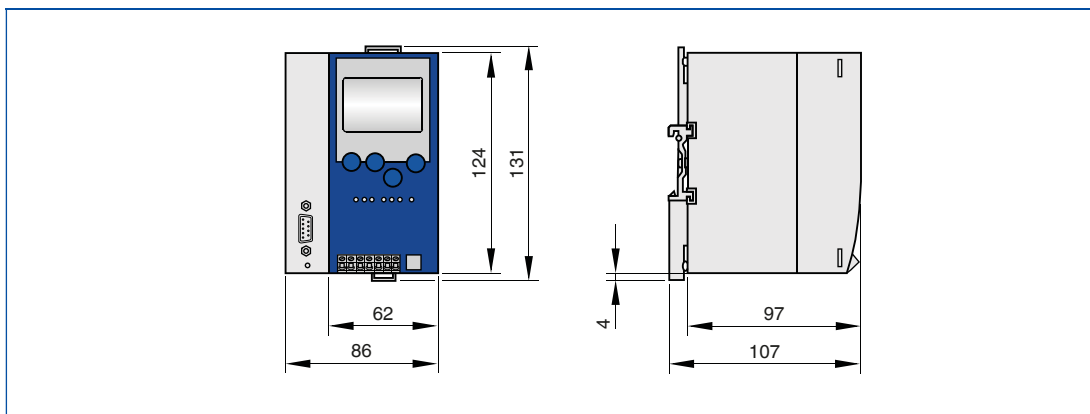| Description	TNC-A1305
Supply voltage	24 V DC
Current consumption	< 500 mA
Power consumption	< 10 VA
Programming interface	RS232C: RJ11; 9600 – 115200 Bd, galvanically isolated
Data interface	PROFIBUS DP (EN 50170); max. 12 MBd slave
Diagnosis via PROFIBUS DP	Yes
PLC memory for user program	128 Kwords
Display	Graphic LC display 128 × 64 pixels, 43 × 28 mm
Max. acceptable rel. humidity	< 95 %
Status LED	2 × red; 2 x green; 2 × yellow
Ambient temperature	0 – 60 °C
Storage temperature	–20 to 70 °C
IP protection level	IP 20
MTTF	5 years
AS-i profile	M3
AS-i certificate	61103
Casing materials	Aluminium, galvanised sheet steel
Casing dimensions	124 × 97 × 86 mm
Fixing	On DIN mounting rail

Wiring

**Connecting cable core identification
TNC-A1305**

n.c.   n.c.   AS-i 1+   AS-i 1−   FE   +24V   0V
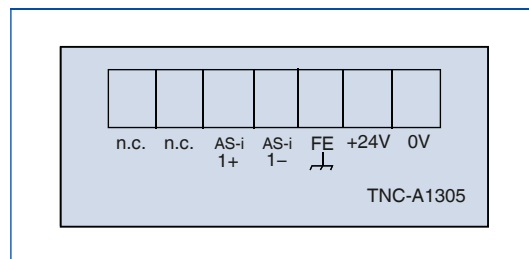
TNC-A1305

Dimensions

AS-i controller TNC-A1305

Specification text

Standard description (characteristics)
AS-i controller TNC-A1305 (1 master)
is a compact AS-i master system with integral
text/graphic display and PROFIBUS DP interface.
– Control of components as part
  of fire damper control
Integral TNC Basic User Software
with the following functions:
– Automatic recognition of TROX modules
  and their functions
– Automatic grouping
– Network control
– Automatic function test
– Manual control of dampers
– Integral display, also for operation
– Simple, menu-driven configuration
  and adjustment
– Supply voltage: 24 V DC
– Total current consumption from AS-i: < 10 mA
– Casing materials: Aluminium,
  galvanised sheet steel
– Ambient temperature: 0 – 60 C°
– IP protection level: IP 20
– Status display: LEDs, 2 x red, 2 x green,
  2 x yellow
– Make: TROX GmbH or equivalent
– Type: TNC-A1305

6

Description

TNC-A1306

Application

– AS-i c TNC-A1306
  with 2 masters for 62 AS-i slaves
– Decentralised operating and monitoring system
  with signal preprocessing and gateway
– With TNC Basic User Software
– Recognition of all slaves on a bus
– For initialising the AS interface network
– Error diagnosis and signalling
– LC display, 43 × 28 mm, also for operation
– PROFIBUS DP interface

Technical data

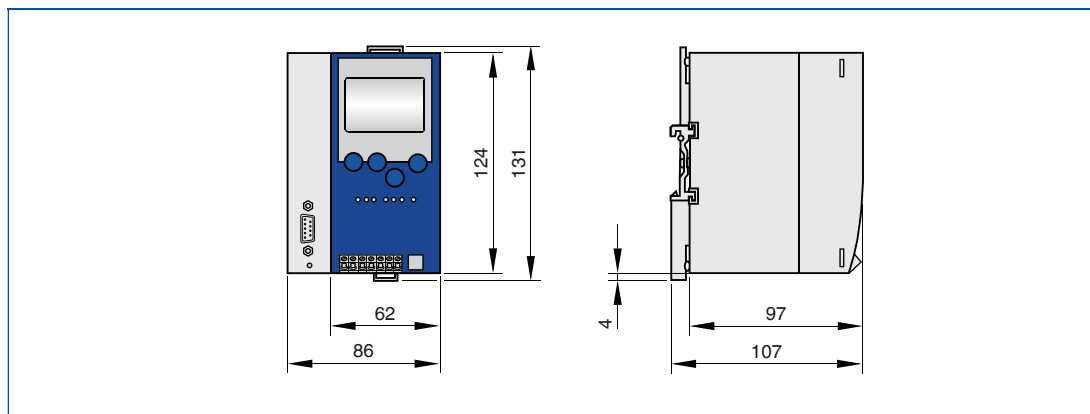| Description	TNC-A1306
Supply voltage	24 V DC
Current consumption	< 500 mA
Power consumption	< 10 VA
Programming interface	RS232C: RJ11; 9600 – 115200 Bd, galvanically isolated
Data interface	PROFIBUS DP (EN 50170); max. 12 MBd slave
Diagnosis via PROFIBUS DP	Yes
PLC memory for user program	128 Kwords
Display	Graphic LC display 128 × 64 pixels, 43 × 28 mm
Max. acceptable rel. humidity	< 95 %
Status LED	3 × red; 3 x green; 3 × yellow
Ambient temperature	0 – 60 °C
Storage temperature	–20 to 70 °C
IP protection level	IP 20
MTTF	5.19 years
AS-i profile	M3
AS-i certificate	61104
Casing materials	Aluminium, galvanised sheet steel
Casing dimensions	124 × 97 × 86 mm
Fixing	On DIN mounting rail

Wiring

Connecting cable core identification TNC-A1306

6
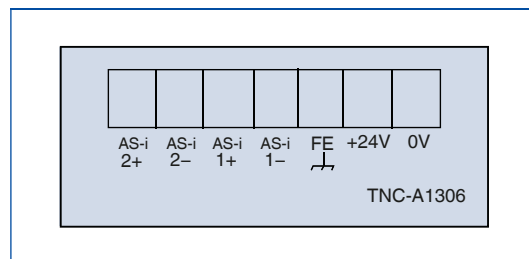
Dimensions

AS-i controller TNC-A1306

Specification text

Standard description (characteristics)
AS-i controller TNC-A1306 (2 masters)
is a compact AS-i master system with integral
text/graphic display and PROFIBUS DP interface.
– Control of components as part
   of fire damper control
Integral TNC Basic User Software
with the following functions:
– Automatic recognition of TROX modules
   and their functions
– Automatic grouping
– Network control
– Automatic function test
– Manual control of dampers
– Integral display, also for operation
– Simple, menu-driven configuration
   and adjustment
– Supply voltage: 24 V DC
– Total current consumption from AS-i: < 10 mA
– Casing materials: Aluminium,
   galvanised sheet steel
– Ambient temperature: 0 – 60 C°
– IP protection level: IP 20
– Status display: LEDs, 3 x red, 3 x green,
   3 x yellow
– Make: TROX GmbH or equivalent
– Type: TNC-A1306

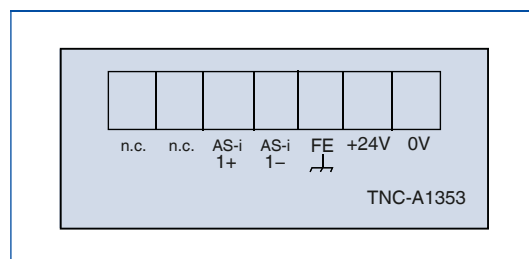**6**

Description

TNC-A1353

Application

– AS-i c TNC-A1353
   with 1 master for 31 AS-i slaves
– Decentralised operating and monitoring system
   with signal preprocessing and gateway
– With TNC Basic User Software
– Recognition of all slaves on a bus
– For initialising the AS interface network
– Error diagnosis and signalling
– LC display, 43 × 28 mm, also for operation
– Ethernet
– Modbus/TCP interface

Technical data

Description	TNC-A1353
Supply voltage	24 V DC
Current consumption	< 400 mA
Power consumption	< 10 VA
Programming interface	RS232C: RJ11; 9600 – 115200 Bd, galvanically isolated Ethernet CAA, RJ45; 10/100 MBd
Data interface	Modbus/TCP
Diagnosis via PROFIBUS DP	Yes
PLC memory for user program	128 Kwords
Display	Graphic LC display 128 × 64 pixels, 43 × 28 mm
Max. acceptable rel. humidity	< 95 %
Status LED	1 × red; 2 x green; 3 × yellow
Ambient temperature	0 – 60 °C
Storage temperature	−20 to 70 °C
IP protection level	IP 20
MTTF	5.2 years
AS-i profile	M3
AS-i certificate	In preparation
Casing materials	Aluminium, galvanised sheet steel
Casing dimensions	124 × 97 × 86 mm
Fixing	On DIN mounting rail

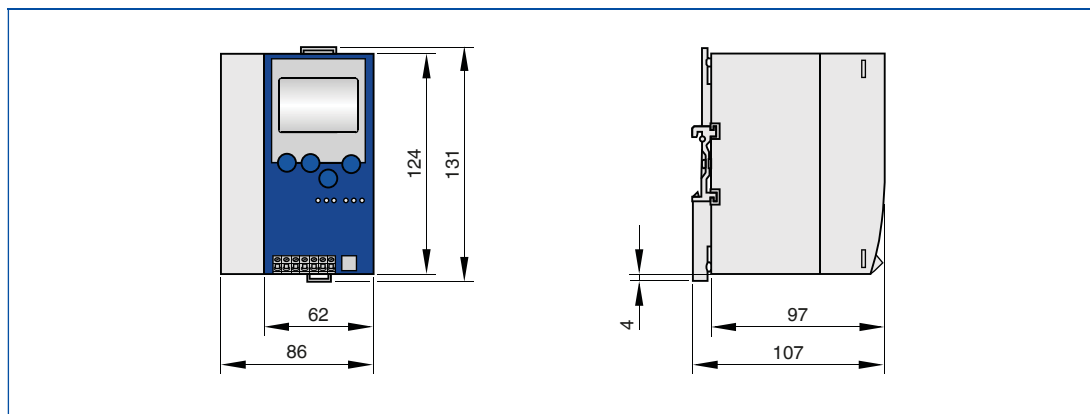**Wiring**

Connecting cable core identification TNC-A1353

6

Dimensions   **AS-i controller TNC-A1353**

Specification text   **Standard description (characteristics)**
AS-i controller TNC-A1353 (1 master)
is a compact AS-i master system with integral
text/graphic display and Ethernet interface.
(Modbus TCP)
– Control of components as part
  of fire damper control
Integral TNC Basic User Software
with the following functions:
– Automatic recognition of TROX modules
  and their functions
– Automatic grouping
– Network control
– Automatic function test
– Manual control of dampers
– Integral display, also for operation
– Simple, menu-driven configuration
  and adjustment
– Supply voltage: 24 V DC
– Total current consumption from AS-i: < 10 mA
– Casing materials: Aluminium,
  galvanised sheet steel
– Ambient temperature: 0 – 60 C°
– IP protection level: IP 20
– Status display: LEDs, 1 x red, 2 x green,
  3 x yellow
– Make: TROX GmbH or equivalent
– Type: TNC-A1353
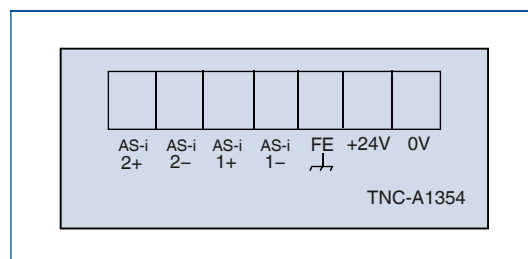
6

Description

TNC-A1354

Application
– AS-i controller TNC-A1354
with 2 masters for 62 AS-i slaves
– Decentralised operating and monitoring system
with signal preprocessing and gateway
– With TNC Basic User Software
– Recognition of all slaves on a bus
– For initialising the AS interface network
– Error diagnosis and signalling
– LC display, 43 × 28 mm, also for operation
– Ethernet
– Modbus/TCP interface

Technical data

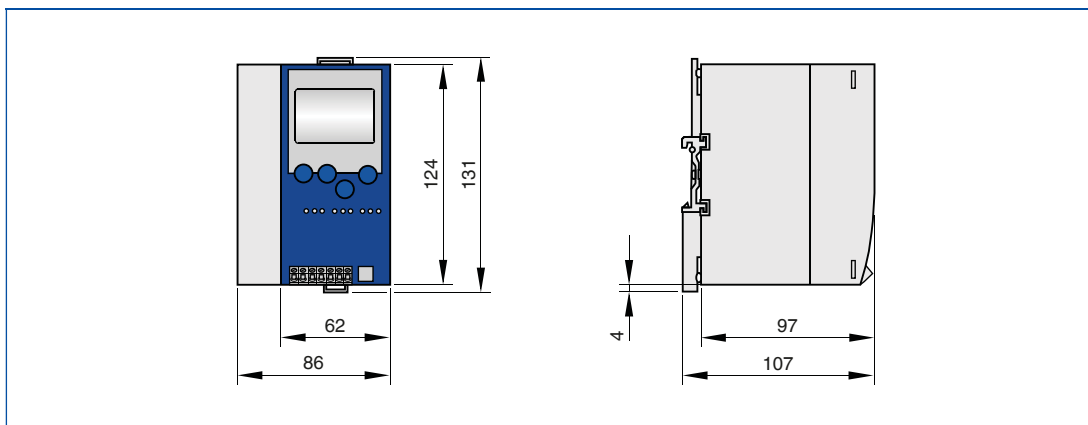| Description	TNC-A1354
Supply voltage	24 V DC
Current consumption	< 400 mA
Power consumption	< 10 VA
Programming interface	RS232C: RJ11; 9600 – 115200 Bd, galvanically isolated Ethernet CAA, RJ45; 10/100 MBd
Data interface	Modbus/TCP
Diagnosis via PROFIBUS DP	Yes
PLC memory for user program	128 Kwords
Display	Graphic LC display 128 × 64 pixels, 43 × 28 mm
Max. acceptable rel. humidity	< 95 %
Status LED	2 × red; 3 x green; 4 × yellow
Ambient temperature	0 – 60 °C
Storage temperature	–20 to 70 °C
IP protection level	IP 20
MTTF	5 years
AS-i profile	M3
AS-i certificate	In preparation
Casing materials	Aluminium, galvanised sheet steel
Casing dimensions	124 × 97 × 86 mm
Fixing	On DIN mounting rail

Wiring

**Connecting cable core identification
TNC-A1354**

6

Dimensions

AS-i controller TNC-A1354

Specification text

Standard description (characteristics)

AS-i controller TNC-A1354 (2 master)
is a compact AS-i master system with integral
text/graphic display and Ethernet interface.
(Modbus TCP)
– Control of components as part
  of fire damper control
Integral TNC Basic User Software
with the following functions:
– Automatic recognition of TROX modules
  and their functions
– Automatic grouping
– Network control
– Automatic function test
– Manual control of dampers
– Integral display, also for operation
– Simple, menu-driven configuration
  and adjustment
– Supply voltage: 24 V DC
– Total current consumption from AS-i: < 10 mA
– Casing materials: Aluminium,
  galvanised sheet steel
– Ambient temperature: 0 – 60 C°
– IP protection level: IP 20
– Status display: LEDs, 2 x red, 3 x green,
  4 x yellow
– Make: TROX GmbH or equivalent
– Type: TNC-A1354

6

Description

TNC-A1375

Application

– AS-i gateway TNC-A1375
  with 1 master for 31 AS-i slaves
– Recognition of all slaves on a bus
– Error diagnosis and signalling
– LC display, 43 × 28 mm, also for operation
– PROFIBUS DP interface

Technical data

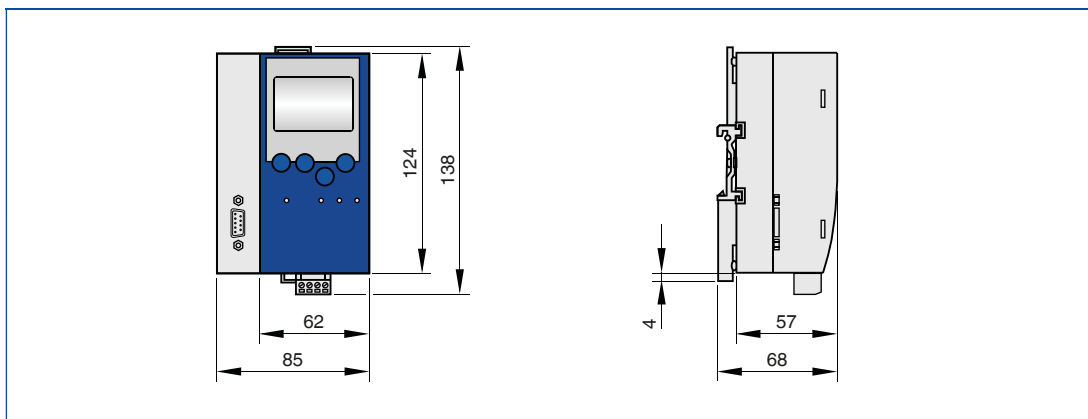| Description	TNC-A1375
Supply voltage	26.5 – 31.6 V DC
Current consumption	< 200 mA
Power consumption	< 4 VA
Data interface	PROFIBUS-DP; max. 12 MBd; EN 50170
Diagnosis via PROFIBUS DP	Yes
Display	Graphic LC display 128 × 64 pixels, 43 × 28 mm
Max. acceptable rel. humidity	< 95 %
Status LED	2 × red; 1 x green; 1 × yellow
Ambient temperature	0 – 60 °C
Storage temperature	–20 – 70 °C
IP protection level	IP 20
MTTF	5 years
AS-i profile	M4
AS-i certificate	In preparation
Casing materials	Aluminium, galvanised sheet steel
Casing dimensions	124 × 97 × 86 mm
Fixing	On DIN mounting rail

Wiring

**Connecting cable core identification
TNC-A1375**
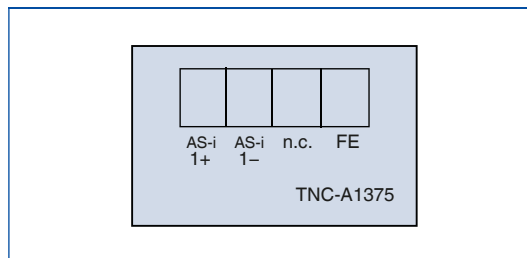
Dimensions

AS-i gateway TNC-A1375

Specification text

Standard description (characteristics)
AS-i gateway TNC-A1375 is a compact gateway
with PROFIBUS DP interface
and without data processing.
– Supply voltage: 26.5 – 31.6 V DC (AS-i)
– Electrical design: SmartLink DP
  with 1 AS-i master
– Total current consumption from AS-i: < 200 mA
– Casing materials: Aluminium,
  galvanised sheet steel
– Ambient temperature: 0 – 60 C°
– IP protection level: IP 20
– Status display:
  LEDs, 2 x red, 1 x green, 1 x yellow
– Make: TROX GmbH or equivalent
– Type: TNC-A1375

6

Description

TNC-A2225

Application
– AS-i repeater TNC-A2225
  allows for cable extension by 100 m
– Modules are installed before
  and after the repeater
– Galvanic isolation of two AS-i branches

Technical data

| Description	TNC-A2225
Supply voltage	26.5 – 31.6 V DC
Current consumption	60 mA per AS-i segment
AS-i interfaces	2
No. of additionally required AS-i power supply units	1
No. of repeaters/controllers/parallel operation	Any number if according to AS-i specification
No. of repeaters/controllers/series operation	up to 2
Galvanically isolated	Yes
Power LED	2 x green
Error LED	2 x red
Ambient temperature	0 – 55 °C
IP protection level	IP 20
EMC	EN 50295
MTTF	180 years
Casing materials	PA 6.6
Note	The AS-i repeater has no slave address; total no. of AS-i slaves per master segment (31 or 62) remains unchanged, no parameter setting required

6

Wiring

Connecting cable core identification

Outgoing AS-i cable	
A–:	AS-i – line 2
A+:	AS-i + line 2
A–:	AS-i – line 2
A+:	AS-i + line 2

Incoming AS-i cable	
A+:	AS-i + line 1
A–:	AS-i – line 1
A+:	AS-i + line 1
A–:	AS-i – line 1

Dimensions

AS-i repeater TNC-A2225
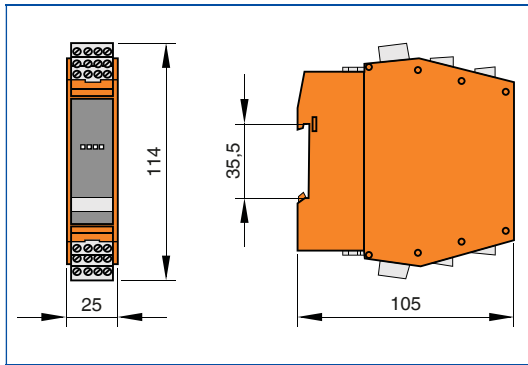
Specification text

Standard description (characteristics)

AS-i repeater allows for a cable
extension by 100 m.
– Total current consumption from AS-i: 2 x 60 mA
– Output/connection: Combicon connector
– Casing materials: PA 6.6
– Ambient temperature: 0 – 55 C°
– IP protection level: IP 20
– Operation: LED, 2 × green
– Error: LED, 2 × red
– Make: TROX GmbH or equivalent
– Type: TNC-A2225

6

Description

TNC-A003S

Application
– AS-i safety monitor TNC-A003S
– Safety monitor for monitoring data transmission
  and the AS-i controller, for safety related
  applications up to SIL 3 to IEC/EN 61508,
  e.g. for the control of smoke control dampers

Technical data

Description	TNC-A003S
Supply voltage	24 V DC ± 15 %
Residual ripple	< 15 %
Rated operating current	150 mA
Peak switch-on current [1]	600 mA
Response time (safety related)	< 40 ms
Power ON delay time	< 10 s
AS-i profile	Monitor 7.F
AS-i voltage range	18.5 – 31.6 V
AS-i current consumption	< 45 mA
Interface RS 232	9600 Bd, no parity, 1 start bit, 1 stop bit, 8 data bits
Start input	Optocoupler input (high active), input current approx. 10 mA (24 V DC)
Contactor control input	Optocoupler input (high active), input current approx. 10 mA (24 V DC)
Safety ON message output [2]	PNP transistor output, 200 mA, short circuit and reverse voltage protection
Safety output	Volt-free NO contacts, max. contact load: 1 A DC-13 at 24 V DC, 3 A AC-15 at 230 V AC
Fuse	Externally, with 4 A MT max.
Overvoltage category	3, for rated operating voltage 300 V AC to VDE 0110 part 1
Operating temperature	–20 to 60 °C
Storage temperature	–30 to 70 °C
IP protection level	IP 20 (only for use in rooms where electric systems operate/switch cabinet with minimum IP 54)
MTTFd	57 years
Distance between 2 AS-i safety monitors	10 mm
Casing dimensions	45 × 105 × 120 mm
Casing material	Polyamide PA66, black
Fixing	On DIN mounting rail

[1] **When all relays are switched on simultaneously;**
   current for message outputs not taken into consideration
[2] **The Safety ON message output is not safety related**

6

Wiring

Terminal connections of the AS-i safety monitor of TNC-A003S

Terminal	Signal/description
AS-i ±	Connection to the AS-i bus
L+	+24 V DC supply voltage
M	GND reference earth
FE	Functional earth
1.Y1	EDM 1/input feedback circuit, output circuit 1
1.Y2	Start 1/Start input, output circuit 1
1.13	Output switching element 1, output circuit 1
1.14	Output switching element 1, output circuit 1
1.23	Output switching element 2, output circuit 1
1.24	Output switching element 2, output circuit 1
1.32	Safety ON/message output 1, output circuit 1
2.Y1	EDM 2/input feedback circuit, output circuit 2
2.Y2	Start 2/Start input, output circuit 2

Dimensions

AS-i safety monitor TNC-A003S
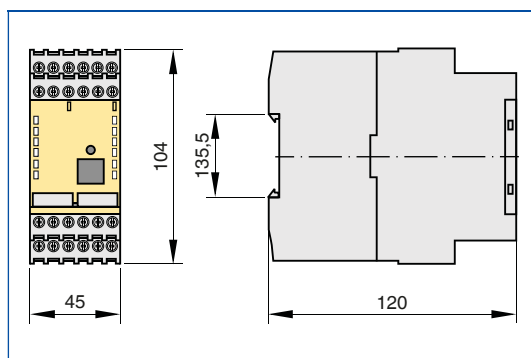
Specification text

Standard description (characteristics)
Safety monitor for monitoring data transmission
and the AS-i controller, for safety related
applications up to SIL 3 to IEC/EN 61508,
e.g. for the control of up
to 4 smoke control dampers
– Supply voltage: 24 V DC ±15 %
– AS-i voltage range: 18.5 – 31.6 V
– AS-i current consumption: < 45 mA
– Operating temperature: –20 to 60 C°
– Protection level: IP 20 (only for use in rooms
   where electric systems operate/switch
   cabinet with minimum IP54)
– Make: TROX GmbH or equivalent
– Type: TNC-A003S

**6**

Description

TNC-ZB0252

Application
– AS-i gateway TNC-ZB0252/F-Link
  for monitoring the inputs of safety related
  binary AS-i slaves
– Compact, safety related gateway between
  PROFIBUS (DP slave) and AS-Interface
– Core component of 'integrated safety',
  meant 'to close the gap in bus-based
  safety technology'
– Monitoring of the inputs of fail-safe binary AS-i
  slaves (ASIsafe slaves) and data transmission
  via PROFIsafe. No need for additional safety
  related components for AS-Interface
  (e.g. safety monitor)
– AS-i master according to AS-Interface
  specification V3.0, master profile M4,
  to connect up to 31 AS-i slaves,
  with integrated analog value transmission
– Direct integration with PROFIBUS networks.
  Optional integration with PROFINET networks
  via PROFINET/PROFIBUS gateway
  (IE/PB link) or SIMATIC S7-315 F PN/DP
– Optimised TIA integration in STEP 7 via Object
  Manager, inclusion in engineering tools by third
  parties via PROFIBUS type file (GSD)
– On-site diagnosis using LEDs
  and a display with button
– Assembly change without PG since start-up
  data is transmitted by PROFIBUS DP master

Technical data

Description	TNC-ZB0252
Supply voltage	24 V DC
Separate voltage supply	Yes
Current consumption	100 mA
Power loss	3 W
Data interface	PROFIBUS DP; RS 485
Supported protocols	ASIsafe (safety at work) protocol, PROFIsafe protocol, PROFIBUS protocol
No. of AS-i slaves	Up to 62
Bus cycle time with 31 slaves	5 ms
Bus cycle time with 62 slaves	10 ms
Max. acceptable relative humidity	10 - 95 %
Ambient temperature	0 – 50 °C
Storage temperature	–40 to 85 °C
IP protection level	IP 20
MTTF	36 years
AS-i profile	M4
AS-i specification	V 3.0
Safety integrity level	SIL3 to IEC 61508
Casing dimensions (B × H × T)	45 × 111 × 124 mm
Fixing	On DIN mounting rail

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Dimensions   **AS-i gateway TNC-ZB0252**
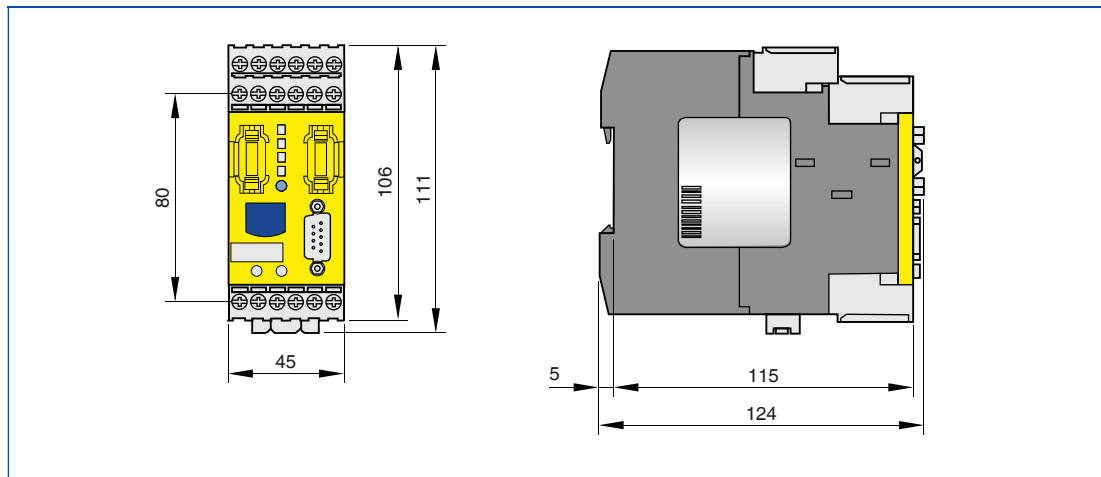
Specification text   **Standard description (characteristics)**

AS-i safety gateway for monitoring the inputs of safety related binary AS-i slaves and for data transmission via PROFIsafe. Direct integration with PROFIBUS networks via PROFIBUS type file (GSD). Connection of up to 20 AS-i safety modules AS-EM/SIL2.
– Supply voltage: 24 V DC
– Current consumption: 100 mA
– Operating temperature 0 to 50 °C
– IP protection level: IP 20
– Make: TROX GmbH or equivalent
– Type: TNC-ZB0252

6

Description

TNC-Z0119

Application
– Passive bus termination
– Cable extension up to 200 m
  without additional repeater
– Improved signal quality
– Supply voltage monitoring with 2 LEDs
– Connection to AS-i cable
  with flat cable connector
– Can only be used when actuators
  have a separate voltage supply

Technical data

Description	TNC-Z0119 (TNC-A1147 + TNC-70096)
Type	TNC-A1147
Supply voltage	26.5 – 31.6 V DC
Current consumption	< 10 mA
Galvanically isolated	Yes
Status LED	Yellow = AS-i voltage > 18.5 V; green = AS-i voltage > 26 V
Ambient temperature	–25 to 70 °C
IP protection level	IP 67
MTTF	550 years
Connection	Flat cable insulation displacement connector
Note	No addressing required
Type	TNC-70096
Max. current load	2 A
Ambient temperature	–25 to 75 °C
IP protection level	IP 67
Casing material	PA
Note	No addressing required

Wiring

Connecting cable core identification TNC-Z0119

① TNC-A1147
② TNC-70096

Yellow when connected to an AS-i flat cable:
1 AS-I +
3 AS-I –

6
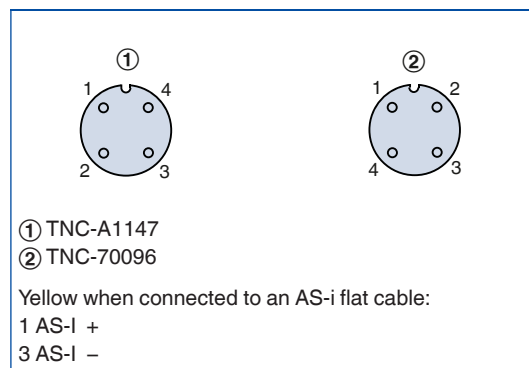
Dimensions

AS-i passive bus termination TNC-Z0119

① TNC-70096
② TNC-A1147
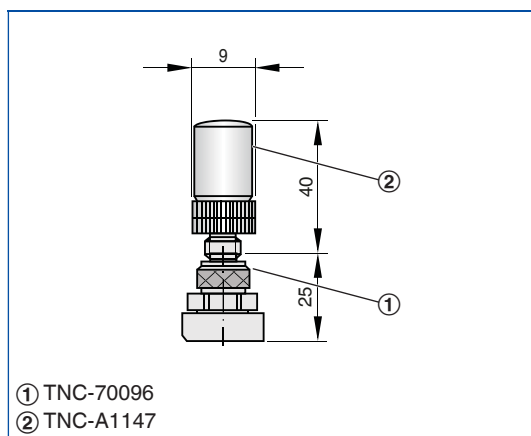
Specification text

Standard description (characteristics)
Passive bus termination (TNC-A1147)
with flat cable connector (TNC-70096)
to make a connection to the AS-i flat cable.
Bus termination to improve the signal quality
and to extend the AS-i cable network
Cable extension up to 200 m.
– Supply voltage: 26.5 – 31.6 V DC
– Current consumption: < 10 mA
– Max. current load: 2 A
– Ambient temperature: –25 to 70 C°
– IP protection level: IP 67
– Make: TROX GmbH or equivalent
– Type: TNC-Z0019

6

TROXNETCOM

Basic information
and nomenclature

■ Communication systems for fire protection systems
■ Colour codes according to IEC 60757
■ AS-Interface
■ LON

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Description

Information and communication are becoming more and more important in today's world. People not only want more information, they also want more detailed information. This development is also visible in building automation, and there is no end in sight. A building becomes 'transparent' through distributed intelligence and new decentralised communication systems.

These new technologies allow us to develop bespoke system solutions for various building services and to integrate them with building management systems. In this way, the best solutions for the different building services can be combined to create the best possible overall solution. Decentralised communication systems offer you the most advanced technology for your application requirements.

Communication systems for fire protection systems

The functional safety of programmable electronic systems is becoming more and more important in fire protection and is implemented with regard to protection goals and risks. According to IEC 61508, the requirements for these systems are based on a risk analysis. Components are given an SIL rating (safety integrity level) and must meet the corresponding requirements to ensure safety even in case of a malfunction.

General advantages of decentralised bus systems

It is no longer necessary to wire every single actuator and every single controller. Modern bus systems only need one bus cable, and in some cases a supply cable, to connect all components. This saves not only installation time but also cables, connectors, terminal blocks, and control cabinet space. It also drastically reduces the fire load and the installation costs. All signals from all components on a bus can be retrieved and recorded by the central unit. Inspection is simplified, and measurement and control can be optimised.

Communications system

① Central BMS
② Base station
③ Bus
④ Field bus
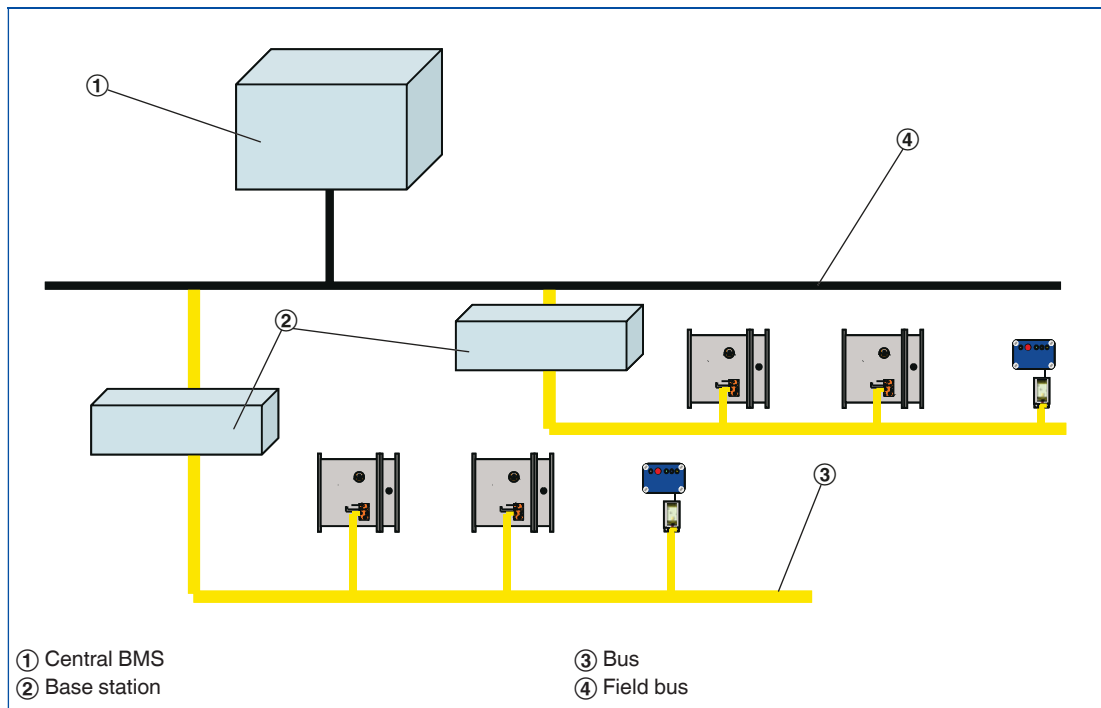
Wiring

Colour codes according to IEC 60757	
Code	**Colour**
BK	black
BN	brown
RD	red
OG	orange
YE	yellow
GN	green
BU	blue

| Colour codes according to IEC 60757	
Code	**Colour**
VT	violet
GY	grey
WH	white
PK	pink
TQ	turquoise
GNYE	green-yellow

Description

The AS interface is a world-standard bus system according to EN 50295 and IEC 62026-2. It enables the integration of different components (modules) in a network regardless of the manufacturer and the design. The modules control actuators and/or receive signals from sensors. TROX provides a system for controlling fire dampers, smoke protection dampers and smoke control dampers based on the AS-i standard. TROX modules are characterised by a wide spectrum of functions yet simple cabling.

Special characteristics
- Data exchange and power supply with just one cable
- Central control of actuators and monitoring of damper blade positions and duct smoke detectors
- Simple commissioning using standardised software
- Automatic function test including data logging

The system

Communications system

① Communication master
② Controller units (master)
③ Modules (slaves)
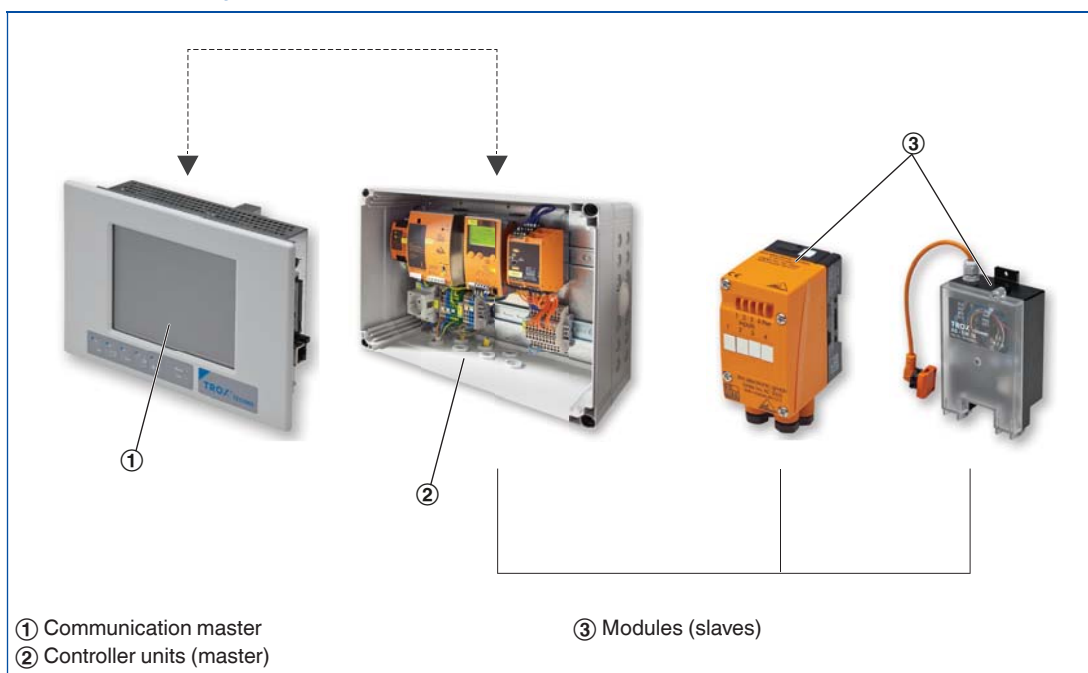
The communication master is the central display and control panel for the entire system.
- Connection of up to 28 controller and power units
- Display of operating status
- Operation of actuators
- Menu-driven operation in case of errors or malfunctions
- System configuration at the time of commissioning
- Logging of function tests and error messages

The controller and power unit combines the control functions, the power supply, and the data exchange for all components on the bus.
- The controller and power unit is installed near the modules, e.g. as a floor distributor
- With TNC Basic User Software for fire and smoke protection
- Communication interface to higher level systems (BACnet/Modbus)
- Display, also for operation
- Units with: 1 master – for 31 modules, 2 masters – for 62 modules

The modules establish the link between the measurement and control signals (sensors and actuators) and the network on the so-called field level. A module provides the supply voltage for the operation of actuators.
- Modules can be part of a fire damper or used separately to connect one or more fire dampers
- Integrated monitoring function, e.g. for running time
- Connection to the bus cable is with a flat cable insulation displacement connector

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Description

LON indicates a standard local operating network system with manufacturer-independent communications. Data is transferred by a microprocessor supplied by Echelon Corporation using a unified protocol. LonMark defines standards to ensure product compatibility. TROX offers components that meet LON standards. TROX modules are characterised by a wide spectrum of functions yet simple cabling.

Special characteristics

– Data exchange and power supply can be achieved with just one cable
– Decentralised structure with high operational reliability
– Standardised data transfer
– Manufacturer-independent compatibility

The system

Network topology
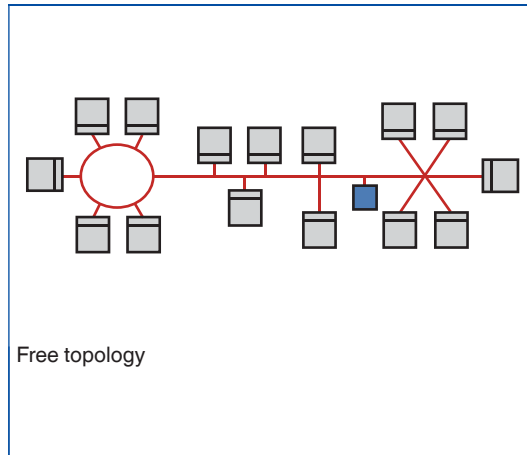
Free topology

Binding network variables

① Switch cabinet
② Duct smoke detector
③ Damper blade position
④ Alarm
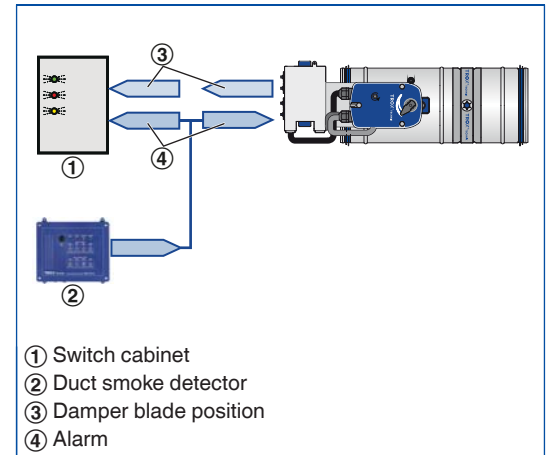
Network

The local operating level (subnet) consists of the modules (nodes) and free topology data cables. A subnet can consist of up to 64 nodes or, alternatively, can be extended to 128 nodes using a repeater or router. Physical data transfer is via systems with or without a transfer of supply voltage. All nodes of a subnet must comply with the system. In larger networks the routers link the subnets with each other. The routers communicate with each other via the backbone, on a separate network level. Central monitoring of a LON network is possible and is connected to the backbone or above it.

Data exchange

Network variables are used for the communication between the nodes. These variables ensure unambiguous data exchange between the nodes. For commissioning, it is necessary to link the network variables between the nodes (binding). Project software is used to link the outputs of a node to the inputs of other nodes. Binding information is transferred to the subnet. Binding is carried out by a system integrator.

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